

FINDING OF NO SIGNIFICANT IMPACT

Squaw Ridge WSA Fuels Treatment

EA# OR-010-2004-05

The Bureau of Land Management, Lakeview District, Lakeview Resource Area, has analyzed a proposal and alternative to reintroduce fire as an ecological process and promote a sustainable system within the western juniper/sagebrush steppe regime of the Squaw Ridge Wilderness Study Area (WSA). The objectives of the proposal are: 1) to protect special resource values (wilderness, old growth juniper stands, ponderosa pine stands, cultural values), 2) to re-introduce fire into the ecosystem, 3.) to improve fuel conditions to promote public, private and firefighter safety within and adjacent to the lava flow area during fire suppression activities, 4) to reduce overall impacts to WSA boundaries/ways and private lands, and 5) to improve Bighorn sheep habitats.

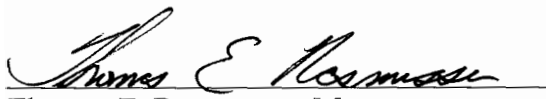
The BLM proposes to use prescribed fire to achieve a mosaic effect. Application of fire could include the use of a helitorch. The total project area is 28, 340 acres and may be implemented within a 5 to 10 year period. The burn mosaic would be approximately 40-70 % of the project area with 30-60 % of the area being left untreated. A prescribed fire burn plan would be developed and implemented for each prescribed fire conducted within the project area. Burning season would depend on correct burn conditions/window. Favorable burn conditions would occur generally in late summer to early fall, when fuels would be cured out enough to burn well and be consumed. The burning season may be pushed back to fall or winter so that winter weather would extinguish burning fuels. An approaching cold front would facilitate burning by producing winds needed to push the fire while simultaneously providing lower temperatures and high humidity that will retard extreme fire behavior.

No line construction would occur within the project area. All travel would be limited to existing roads and trails. All sites proposed for treatment would be surveyed for impacts to cultural resources prior to conducting prescribed fires. All sites proposed for treatment would be inventoried for Special Status species. Pre fire condition and post fire effects will be monitored to determine natural recovery and/or weed and cheat grass invasion. All actions would adhere to the BLM's Interim Management Policy for Lands Under Wilderness Review (1995).

This project is in conformance with the Lakeview Resource Management Plan/Record of Decision (2003), the IMP, the Fort Rock Fire Management Area Fire Management Plan (1996), the Wildland and Prescribed Fire Management Policy (1998), the National Fire Plan (2001) and Integrated Noxious Weed Control Program EA, as amended. The project is within a designated Wilderness Study Area, and is a permitted exception to the nonimpairment criteria as described in the IMP. The project will enhance the wilderness values of naturalness. There are no wild and scenic rivers, known hazardous waste areas, areas of religious concern, or prime or unique farmlands in the immediate project areas. No significant or disproportionate impacts would occur to low income or minority populations. The risk of noxious weed infestation would be low. Impacts to air quality, cultural resources, vegetation, soils, weeds, cultural resources, visual

resources, recreation, range, sensitive plant species, and noxious weeds are described in the attached EA. Reduction of woody fuels would result in an increase in the relative abundance of forbs and grasses. Fuel loading would be reduced, restoring fuels to a more naturally occurring level, and greatly reducing the probability of catastrophic wildfire in the future. This project would have a beneficial impact on bighorn sheep habitat. No significant adverse impacts would occur to other to other wildlife. Surveys found no threatened or endangered plants or animals. Surveys for cultural or paleontological resources would be conducted prior to burning. Any sites found would be noted in the burn plans and avoided during burn implementation.

On the basis of the analysis contained in the attached EA and all other available information, my determination is that none of the alternatives analyzed would constitute a major federal action which would adversely impact the quality of the human environment. Therefore, an Environmental Impact Statement (EIS) is unnecessary and will not be prepared.



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Lakeview Resource Area

8/19/04
Date

**UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
LAKEVIEW, OREGON 97630**



**SQUAW RIDGE WILDERNESS STUDY AREA
FUELS TREATMENT
EA# OR-010-2004-05**

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Squaw Ridge WSA Fuels Treatment

EA# OR-010-2004-05

I. Introduction:

This Environmental Assessment (EA) analyzes the impacts of reestablishing fire as a natural process within the Squaw Ridge Wilderness Study Area (WSA #OR-1-3), located in northern Lake County, Oregon. The project area is managed by the Lakeview Resource Area, Lakeview District BLM. The Squaw Ridge project area is located approximately 96 miles north of Lakeview, or 15 miles north of Christmas Valley, Oregon, within the Squaw Ridge WSA (see Maps 1 and 2). The Squaw Ridge project area is located within:

- Township 24 S., Range 16 E., Sections 13-16, 21-24, 25-28, 33-36
- Township 24 S., Range 17 E., Sections 7, 8, 16-21, 27-34
- Township 25 S., Range 16 E., Sections 1-3, 11, 12
- Township 25 S., Range 17 E., Sections 4-8

II. PURPOSE AND NEED FOR THE PROPOSAL:

A. Purpose and Need:

The BLM is responsible for land management and use such that biological, physical and cultural resources are protected or improved over time (Taylor Grazing Act of 1934, The Federal Land Policy and Management Act of 1976, and the Public Range Lands Improvement Act of 1978). Further, the BLM's *Interim Management Policy for Lands under Wilderness Review* (IMP/BLM 1995) encourages natural ecological processes be the primary management methods used to manage potential wilderness areas.

A combination of the increase in junipers and stagnation of sagebrush has resulted in a relatively heavy fuel load for this fuel type. Recent wildfires within the Squaw Ridge lava flow have made runs to the WSA boundary, and only heavy suppression activity prevented the fires from escaping the lava flow and going onto private land and the adjacent Deschutes National Forest. Subsequent actions within the WSA to repair impacts from the suppression activity have included rehabilitating cat lines, breaking up and seeding compacted soil at water tank sites, seeding mowed or bladed safety zones, and pulling natural materials alongside existing ways that have been widened by repeated heavy engine traffic.

Research supports the importance of the role of fire as a natural disturbance process within sagebrush (*Artemisia* spp.) and juniper ecosystems (Kauffman and Sapsis 1989, Agee 1993, Miller and Svejcar 1994, Miller et al. 1995) and pine stand forests (Franklin and Dryness 1973).

The primary purpose of the proposed action is to reintroduce fire as an ecological process and promote a sustainable system within the western juniper/sagebrush steppe regime. The project area covers approximately 28,340 acres; the treatment area lies entirely within the lava flows (24,000 acres of the project area). Decades of fire exclusion, has significantly altered

the pre-settlement fire regimes of most High Desert plant communities over the past 100 years (Kauffman and Sapsis 1989). Reintroducing fire into these communities is needed to control invasive species, remove hazardous fuel loads and restore vegetative diversity. The Squirrel wildfire (1998) increased the diversity of plant communities just west of the proposed project area. Several years of trend plots support the positive effect of fire in this nearby plant community.

The secondary purpose of the proposed action is to implement a fuels treatment plan that will systematically reduce fuel loading, which will ultimately lead to a decrease in the potential for catastrophic damage from wildfire. Much of the project area contains pockets of old growth western juniper in addition to smaller pockets of ponderosa pine of varying age classes, and old growth mountain mahogany. The project area is bounded to the west by private lands; beyond these private lands lay US Forest Service lands administered by the Deschutes National Forest (Map 2). Increases in fuel loading have been due in part by aggressive fire suppression activities designed to keep the fires from getting onto the private and Forest Service lands to the northwest. With this hazardous fuel load, a wildfire in the area may cause catastrophic consequences to the biotic community, and threaten the neighboring national forest and private lands. By conducting a prescribed burn under controlled conditions in cooler weather, a mosaic can be created which would protect the remaining trees from the effects of a hotter, catastrophic, stand replacing fire.

B. Relationship to Land Use Plans:

The proposed action is consistent with management direction contained in the *Lakeview Resource Management Plan and Record of Decision (RMP/ROD, 2003)*, *National Fire Plan (YEAR?)* goals, and movement towards the desired future conditions identified in these plans.

a. Lakeview RMP/ROD Goals:

The proposed action will move the project area towards the resource specific goals identified in the RMP/ROD and referenced below:

Wilderness Goal #1 (p.70): Wilderness Study Areas will be managed under the IMP.

Forest and Woodlands Goal #2 (pp.33-34): Restore productivity and biodiversity in western juniper woodlands and quaking aspen groves.

Management Direction:

- Native American Uses or values will be evaluated
- Over the life of the plan, up to 50% of juniper woodlands will be treated by prescribed fire, commercial or public wood cutting, or mechanical treatment.
- Invasive western juniper will be treated on 18, 000- 30,000 acres of bighorn sheep range (in an area which identifies Squaw Ridge). Note: Reiterated in Management Direction for Wildlife (p. 45)

Wildlife Goal #1 (p. 44): Facilitate the maintenance, restoration, and enhancement of big game (mule deer, elk, pronghorn and bighorn sheep) populations and habitat on public land.

Special Status Animal Species Goal #1 (p. 51): Manage public land to maintain, restore, or enhance populations and habitats of special status animal species.....

Fire Management Goal # 3 (p. 82): Restore and maintain ecosystems consistent with land uses and historic fire regimes through wildland fire use, prescribed fire, and other methods. Reduce areas of high fuel loading resulting from years of fire suppression that may contribute to extreme fire behavior.

b. National Fire Plan Goals*:

The proposed project also addresses three goals outlined by the National Fire Plan's "*A Collaborative Approach for Reducing Wildland Fire Risks to Communities and Environment/10 Year Comprehensive Strategy*" (2001). The goals addressed are:

- 1) Improve Prevention and Suppression
- 2) Reduce Hazardous Fuels
- 3) Restore Fire Adapted Ecosystems

**Congress provided direction for the development of this strategy in a committee report for the FY 2001 Interior and Related Agencies Appropriations Act (P.L. 106-291).*

C. Conformance with Other Land Use Plans/Policies:

The proposed project has been reviewed and found to be in conformance with the following BLM plans or programmatic environmental analyses or policies:

Oregon Wilderness FEIS and ROD (1989 and 1991)

Wilderness Interim Management Policy (1995)

Vegetation Treatment on BLM Lands in Thirteen Western States FEIS and ROD (1991)

Supplement to the Northwest Area Noxious Weed Control Program FEIS and ROD (1987)

Integrated Noxious Weed Control Program EA #OR-010-04-03 (2004)

Lakeview District Fire Management Plan - Phase 1 (1998)

Wildland and Prescribed Fire Management Policy (1998)

Standards for Land Health for Lands Administered by the Bureau of Land Management in the States of Oregon and Washington (1998)

Interior Columbia Basin Strategy (2003)

D. Decision to Be Made:

The decision to be made is whether or not to reintroduce fire as an ecological process by implementing a prescribed fire fuels treatment plan that would reduce fuel loads and decrease the potential for catastrophic wildfires in the Squaw Ridge WSA. Wildfire suppression decisions are already addressed in the Lakeview RMP/ROD and the Fort Rock Fire Management Plan (1996) and will not be addressed in this document.

Scoping

This proposal was subjected to internal scoping by an interdisciplinary team along with adjacent landowners, permittees, and cooperating agencies. The scoping process identified five issues: enhancing wilderness values (non-impairment), archaeological (e.g., antiquities, rock art), botanical (plants of special concern), safety (public and firefighter) and wildlife (e.g., retention of adequate thermal cover for big game).

III. Description of the Proposed Action:

The BLM proposes to use prescribed fire to achieve a mosaic effect. Application of fire could include the use of a helitorch. The total project area is 28,340 acres and may be implemented within a 5 to 10 year period with a series of prescribed burns. The first area of treatment will be approximately 7000 acres on the western side of the WSA, and is indicated on attached Map #2. The burn mosaic would be approximately 40-70% of the project area with 30-60% of the area being left untreated. A prescribed fire burn plan would be developed and implemented for each prescribed fire conducted within the project area.

All actions would adhere to the BLM's Interim Management Policy for Lands Under Wilderness Review (1995).

The objectives of the proposed action are to:

1. Protect special resource values (wilderness values, old growth juniper stands, ponderosa pine stands, cultural values).
2. Re-introduce fire into the ecosystem.
3. Improve fuel conditions to promote public (private) and firefighter safety within and adjacent to the lava flow.
4. Reduce overall impacts to WSA boundary/ways and private lands.
5. Improve Bighorn Sheep habitats.

IV. ALTERNATIVES (INCLUDING THE NO ACTION ALTERNATIVE):

Alternatives Considered in Detail

This section describes the alternatives (potential actions) analyzed in detail.

A. Preferred Alternative No. 1: Conduct prescribed burn

No pre-treatment of the area would occur. To protect the visual quality of the WSA, and to ensure that no physical pre-treatment is needed, a 100 foot buffer along the WSA way/boundary towards the lavas interior would be established. The buffer would be created

by setting fire at a minimum of 100 yards into the WSA and monitoring to ensure the fire does not go towards the boundary. Water and/or retardant could be applied if necessary. Fire would be used to achieve a mosaic effect and/or strategic fuel removal. Application of the fire could include the use of a helitorch. The project will encompass federal lands administered by the BLM only.

The total project area is 28,340 acres, and may be implemented in segments over a 5 to 10 year period (Map 2). The first area of treatment will be approximately 7000 acres on the western side of the WSA, and is indicated on attached Map #2. Portions of the project area have already burned in several previous wildfires, most recently the Lugnut Fire in 2000 and the Lava Fire in 2002. The burn mosaic would be approximately 40-70% of the project area with 30-60% of the area being untreated. The planned burning season would depend on correct burn conditions/window. **Burning season would depend on correct burn conditions/window.** Favorable burn conditions would occur generally in late summer to early fall, when fuels would be cured out enough to burn well and be consumed. The burning season may be pushed back to fall or winter so that winter weather would extinguish burning fuels. An approaching cold front would facilitate burning by producing winds needed to push the fire while simultaneously providing lower temperatures and high humidity that will retard extreme fire behavior. Local BLM crews, contractors, and/or cooperators would conduct all project activities. No line construction would occur within the WSA.

Pre-fire condition and post-fire effects will be determined by monitoring plant community composition and trend in burn areas to determine natural recovery and/or weed and cheat grass invasion. Monitoring may include photo points, density, cover, frequency plots (pre and post burn) and ocular estimates.

All actions would adhere to the BLM's *Interim Management Policy for Lands Under Wilderness Review (1995)*.

A prescribed fire burn plan would be developed and implemented for each prescribed fire conducted within the project area. The Lakeview Resource Area Outdoor Recreation Planner would be notified in advance of the start each prescribed burn and would be involved in reviewing the prescribed burn plan(s) to ensure compliance with the IMP.

Mitigation Measures for Alternative No. 1:

1. All sites proposed for treatment would be surveyed for impacts to cultural resources prior to conducting prescribed fires. Any sites located during the survey would be avoided or mitigated. Cultural plant locations would be analyzed for protection (even though fire may enhance rather than destroy these species).
2. Motorized equipment would be limited to existing roads and trails.
3. A WSA Proposed Action Analysis form would be completed for each specific prescribed burn (see Appendix A).
4. A visual contrast ratings form (8400-4) would be filled out for each prescribed burn.

5. All sites proposed for treatment would be inventoried for Special Status species (Threatened, Endangered or Sensitive species) prior to conducting prescribed burns. If any Special Status species are found, site-specific mitigation measure would be identified and implemented.
6. Areas with large concentrations of cheat grass would not be targeted for burning.

B. Alternative No. 2: No Action

This alternative would result in no change in current management activities; no prescribed burns would be conducted. Future wildfires would be the primary means of reducing fuel loads in the project area.

Alternatives Considered but Eliminated from Detailed Analysis:

One additional alternative was considered. It involved prescribed burning of the boundary and ways along the western boundary of the WSA, extending approximately 100 yards into the WSA creating a buffer. This alternative would provide some measure of safety for future firefighting efforts in the area, and would provide a small barrier between BLM and adjacent private and USFS lands. However, it would not accomplish the larger objectives of reintroducing fire into the ecosystem and protecting the old growth juniper and mountain mahogany from catastrophic wildfire. In addition, given the heavy fuel type found in this area, wildfire spread often is accomplished by spotting rather than a ground fire; thus, a buffer would not prohibit the fire from spotting and spreading across the buffer and to the west onto private and USFS lands and areas infested with weeds.

V. AFFECTED ENVIRONMENT:

A. Squaw Ridge Project Area – General Description

The project area covers the entire Squaw Ridge WSA (Map 2). The length of the project area from north to south is approximately 6 miles by 6 ½ miles east to west. The area is managed under the BLM's *Interim Management Policy for Lands under Wilderness Review* (1995). A detailed description of the WSA is found in the *Oregon Wilderness FEIS* (1989). The following is a summary of resource values found in the WSA.

B. Air Quality

In the proposed project area there are no air quality restriction areas (Class 1 air sheds, non-attainment areas, or special protection areas). Particulate matter on federally administered lands originates from several sources including road dust, wildfire, or prescribed burning. Although smoke and fire are a natural part of ecosystem, they can potentially affect human health in the form of particulate matter and are therefore, an issue of concern.

C. Cultural Resources

The Squaw Ridge project lies in a geographical region that contains numerous significant cultural resources. These consist of both archaeological sites and traditional cultural use areas.

The record of occupation in this region covers the full time period for which we know Native Americans occupied the Northern Great Basin. This record begins thousands of years ago and lasts up to today. Important past uses of these project areas are indicated by the presence of rock art, large occupation sites, stone tool quarries and house structures. Because of the presence of obsidian sources, this general area appears to have been of great importance for past human use.

D. Cultural Plants:

While there are no known traditional cultural use areas present within the project areas, several plant species of importance to Native Americans do grow in the area including gooseberry, currant, blazing star, Indian tobacco, and grasses, such as Indian rice-grass, needle-and-thread, and Great Basin wild rye. Juniper is an important cultural plant and it will be discussed under consultation with the tribes. Persons from the Warm Springs, Klamath and Burns tribes have indicated an interest in collecting these plants within the region (*see Appendix B*).

E. Vegetation and Soils:

Ninety percent of the project area is located within the Squaw Ridge lava flow. The vegetation type within Squaw Ridge lava flow consists of western juniper/sagebrush/bunchgrass communities. Scattered ponderosa pines exist within the WSA, as does bitterbrush and mountain mahogany. The Wyoming big sagebrush (*Artemisia tridentata* var. *wyomingensis*) and antelope bitterbrush (*Purshia tridentata*) plant community dominate on deeper soils or slightly cooler micro sites, where insulation is reduced. Western juniper (*Juniperus occidentalis*) grows throughout the entire area; 90% of these trees appear to be under 100 years old, but there are a few stands of “old growth” juniper, especially in the southwestern part. Microbiotic crusts of thick mosses have developed beneath the “old growth” juniper clumps. In the northwest corner of the WSA, crowded stands of young juniper and mountain mahogany have developed on the rocky crests of lava and even of the flatter areas forming almost impenetrable stands. Mature ponderosa pine (*Pinus ponderosa*) with a few young trees are scattered throughout the complex. There are a few communities of low sagebrush (*Artemisia arbuscula*) in the shrub layer where soils are shallow and/or rocky. Exotic species, such as cheat grass (*Bromus tectorum*) occur very sparingly within the WSA; however, on the southern edge there is a heavy infestation on the sandy soils where the Lugnut Fire (2001) took place and where back-fires were burned.

Around the fringes of the lava flow, where sand has accumulated, cheat grass is present; during the foot surveys little was found within the interior of the WSA.

Two surveys were conducted in 2003 by foot and observations were made from aerial photos taken by a BLM biologist. The aerial photos confirm the grounds surveys; junipers across most of the WSA (85%) are scattered with a few forbs and some shrubs in the understory. Five percent of the area has little to no vegetation due to lava substrate. The other 10 % consists of heavy contiguous stands of juniper, mountain mahogany and other shrubs. In the southern part of the WSA, the cracks (canyons) in the lava do not have heavy concentrations of downed, decadent fuels. In the northern half, some of the cracks have dead and down materials that add to the fuel load. Unfortunately, ponderosa pine does not show up very well in the photos; however, it is a “fire adapted” tree species and should not be affected by the type of prescription burns being proposed.

The Lava wildfire in 2002 did not cause much of an increase in cheat grass because the rains did not come at the proper time to help the introduced grass germinate. Along the southern boundary of the project area, exotic species, such as tumble mustards and cheat grass occur within this community. Cheat grass also occurs along existing roads and ways. The area has pockets of mountain mahogany throughout; in the northwest corner there are heavy concentrations of mountain mahogany mixed with younger junipers (<150 years old). Aspen occurs in a few locations within the lava flow. Pockets of old growth juniper (150 years +) with associated microbiotic crusts and mosses also occur throughout the lava flow area. Where old growth juniper and ponderosa pines occur, the soils beneath them may have thick developed microbiotic crusts. See Appendix B, for a detailed listing of plant species occurring in the western half of the project area.

F. Fuels and Firefighter Safety

Fuels within the Squaw Ridge project area consist generally of western juniper, mountain mahogany, bitterbrush, big sagebrush, low sage and bunch grasses. Ponderosa pines also occur in a small extent of the project area. The Squaw Ridge lava flow is a raised platform or lava rock with pockets and crevices of soils occurring through out and vegetation occupying all available soils. Lands adjacent to the flow are typical of a high desert juniper/sage brush steppe: big sage intermixed with large areas of mixed seral state bitterbrush, small patches of low sage brush, with small amounts of rabbit brush. Past successful fire exclusion and management have altered this habitat as evidenced by the expansion of juniper. Large pockets of duff extend down into the cracks and crevices of the lava for several feet, making it very difficult to suppress fires occurring in this area.

Wildfires that have burned in this area in the past have been difficult and costly to suppress.

- 1) Personnel working inside the lava have no easily traversable escape route to a safety zone.
- 2) The terrain itself is a hazard to firefighters due to harm from the uneven and broken rock. This causes unneeded ankle and knee injuries.
- 3) Under our limited suppression plan we take action when the fire is usually making significant runs. Fire intensity is the greatest at these times and problematic fire behavior is also present. This is a risk to our safety as well for we are much safer suppressing a fire when it is small and inactive.

G. Wildlife

Much of the project area supports healthy diverse wildlife populations. Special status species that are known to occur or that have potential habitat within the project area include the bald eagle (*Haliaeetus leucocephalus*), ferruginous hawk (*Buteo regalis*), peregrine falcon (*Falco peregrinus*), Townsend's big-eared bat (*Corynorhinus townsendii*) and the greater sage-grouse (*Centrocercus urophasianus*). There are also three species with high public interest. These are mule deer (*Odocoileus hemionus*), California bighorn sheep (*Ovis canadensis californiana*) and Elk (*Cervus elaphus*).

No nesting known sites exist within the project area for bald eagles or peregrine falcons. It is suspected that they are occasional visitors to the area. No incidental sightings of peregrines or bald eagles exist within the project area. Some foraging habitat for bald eagles may occur here, however it is probably restricted mostly to road killed deer adjacent to the major roadways and occasional carrion. There are no good foraging areas for peregrine falcons within close proximity. Nesting and foraging habitat is available for ferruginous hawks within the project area. No surveys have been conducted for ferruginous hawk. There are no known sightings within the project area, but there are adjacent sightings surrounding of the project area.

There are no known sightings for Townsend's big-eared bat within the project area. This species does inhabit several caves within the surrounding lava flows and is strongly suspected of inhabiting the lava caves within this flow as well. Roosting and maternity habitats include man made structures, caves and rock crevices. Foraging habitats are open areas and woodlands.

Mule deer inhabit much of the area. They may be restricted from some small portions of the project due to the rugged nature of the lava flows. High concentrations of wintering mule deer inhabit the project area from November to April. There are no roads within the project area, except for one road that winds its way around the outside of the lava flows. Cover and security for wintering mule deer is good within the project area. Forage consists mostly of abundant bitterbrush, sagebrush and other herbaceous species.

California bighorn sheep historically occurred within the project area and the adjacent lava flows. This species was extirpated from Oregon by 1915 (Fisher 1992). Reintroduction efforts began in the surrounding area in the 1990's. Currently, a small band of bighorn reside within the Squaw Ridge lava flow and occasionally visit the project area. Habitats within the northern half of the project area are currently unsuitable for bighorn sheep due to a dense layer of brush and trees that reduces available forage and provides cover for predators like mountain lions. The southern portion of the project area was burned by wildfires in 2001 and 2002. This area is now more suited to bighorn use because the wildfires removed much of the trees and brush.

Over the last decade, elk use has been increasing within northern Lake County. Much of the project area has potential to receive use from elk. Elk use is currently light to moderate within the project area. Cover and forage for elk is adequate to support a few animals for most of the year, although most use is probably during the winter months.

There are no known greater sage-grouse leks within the project area. Sage-grouse probably occasionally use the fringes of the project area, however currently there is not sufficient habitat within the project area for sage-grouse.

There are many other wildlife species that inhabit the project area. These include other large and small mammals, birds, and reptiles. Habitats for these groups are diverse and can be found in small patches throughout the project area. There are no fish bearing streams in the project area. Fish habitat will not be discussed further.

H. Visual Resources

The proposed project area is managed as a Visual Resource Management (VRM) Class I. The objective of Class I is to preserve the character of the landscape and provide for natural ecological changes. Class I management does not preclude limited management activity. However, the level of change to the characteristic landscape should be very low and must not attract attention.

Ninety percent of the project area is located in a lava flow. The colors represented within this flow tend to range from browns and dark greens to blacks. The landscape is rolling with moderate grades. The predominant landmark is Lava Mountain (often incorrectly referred to as Squaw Ridge), in the center of the WSA, and is its highest point. Two sets of twin cinder cones; both called Twin Buttes (one located east of Lava Mountain and the other to the southwest) are also prominent features.

I. Wilderness

The Squaw Ridge WSA contains 28,340 acres of public land and a 320 acre State-owned inholding near the eastern edge of the WSA (outside of the project area). Wilderness values identified in the original inventory and the *Oregon Wilderness Final Environmental Impact Statement* (1989) include the following:

Opportunities for Solitude:

The irregular surface of the lava flow and abundant juniper, mountain mahogany and sagebrush help to isolate the visitor.

The juniper also blocks the view of man made features within the WSA such as five small reservoirs and 7 ½ miles of pasture fence.

Naturalness:

The area is known for its variety of volcanic features, including: sharp and convoluted “aa” lava, flat featured, smooth surfaced pahoehoe lava, collapses, tumuli (fractured basaltic domes), cinder cones, squeeze-ups (lava forced through fissures), spires and ropy lavas. The area also contains several kipukas—areas of relatively undisturbed vegetation within the lava flow.

Fire plays a major role in the ecology of the vegetation on the lava flow, which is quite prone to wildfires. Burned areas can be observed throughout the WSA.

Primitive and unconfined recreation:

The areas outside the lava flow contain the best areas for camping and hiking.

Supplemental Values:

Native vegetation in the WSA, which includes:

- Bunchgrasses such as bluebunch wheatgrass, Indian rice grass, Idaho fescue, and needle-and-thread grass
- Wildflowers such as sego lily, buckwheat, *Mimulus*, *Penstemon*, *Phacelia*, and Indian tobacco
- Lichens
- Juniper (old growth stands)
- Mountain Mahogany
- Ponderosa pine
- Quaking Aspen
- Desert-sweet shrub

The eastern side of the WSA contains kipukas-unique areas of relatively undisturbed vegetation in lava fields.

The WSA is crucial deer winter range.

Special features noted in the EIS include its location in an ecotone between the sagebrush steppe and ponderosa pine forest, the presence of kipukas (undisturbed soils and native vegetation in the lava field), and its location in crucial deer winter range and wintering range for the bald eagle.

J. Recreation

Opportunities for solitude and primitive and unconfined types of recreation are abundant within the Squaw Ridge WSA. Recreational use is fairly low, and mostly associated with hunting big game outside of the lava flow areas.

In the project area, an immediate sense of solitude is found anywhere within the rugged terrain of the lava flow due to the rugged terrain and dense vegetation. The ruggedness of the lava bed precludes much activity in the lava itself, so most vehicle use takes place along the “ways” which hug the outer perimeter of the lava (Map 2). Several primitive campsites can be found along these “ways”. Although vehicles are restricted to staying on existing roads and trails (ways) within the Squaw Ridge WSA, some unauthorized cross-country ATV and OHV use associated with antler collecting, hunting and exploration takes place around the lava bed. Opportunities for primitive recreation include hiking, photography, nature study, camping, hunting, and general sightseeing.

K. Range Administration:

Allotments # 101, 103, 910, 914 and 915 are located within on the periphery of the Squaw Ridge project area, outside the lava flow. Most of the prescribed fires would occur within the lava field area. The lava flow itself is not within an allotment (i.e. is not allocated to grazing use).

L. Sensitive Plant Species

A field survey for federally listed threatened and endangered species, candidate species, and BLM-listed sensitive plant species was conducted in the western portion of the project area in FY 2003. No threatened and endangered or BLM candidate sensitive species were discovered in the survey work. However, *Mimulus tricolor* could occur specialized sites in early spring. It has not been demonstrated that fire has a negative effect on *Mimulus*; fall burning could enhance nutrients for these spring annuals. The survey for special status plant species did not locate any threatened or endangered plant species. See Appendix B for a list of vascular plant species encountered during the survey.

M. Noxious Weeds

No noxious weeds are known to occur in the project area. However, the treatment area does have frequent occurrences of cheat grass along the roads and ways that skirt the perimeter of the lava field, particularly on the south end of the project area where previous wildfires and associated suppression activities occurred.

VI. ENVIRONMENTAL CONSEQUENCES:

Introduction

The following elements have been considered and are either not present, or would not be significantly affected by any of the alternatives considered: Areas of Critical Environmental Concern, Research Natural Areas, prime and unique farmlands, flood plains, solid or hazardous waste, drinking and ground water quality, wetlands or riparian areas, threatened or endangered species, wild or scenic rivers, lands, energy or minerals, aquatic/fish communities, or wild horses. There would be no impact to low income or minority populations.

A. Preferred Alternative No. 1: Conduct Prescribed Burn(s)

1. Air Quality

Studies indicate that prescribed fires, ignited under fuel moisture conditions that reduce total fuel consumption and conducted when mixing heights and winds are more favorable for

smoke dispersal, produce lower levels of particulate matter than uncontrolled wildfires. Therefore, while prescribed burning may have a temporary negative effect on air quality, in the long term, acute impacts of prescribed fires can be reduced compared to wildfires. (FS and BLM 1997). Visibility can also be affected by prescribed burning. Fine particulate matter generally less than 2.5 microns in diameter is the primary cause of visibility impairment. Prescribed burning emissions, which may stay suspended for many miles, are in the 0.1 to 2.5 micron size class, and would temporarily reduce visibility (FS and BLM 1997). The Clean Air Act (1077 Amendment) requires the State to consider strategies for reducing visibility impairment from prescribed burns. Visibility concerns can be addressed and mitigated under prescribed fire conditions. Visibility under wildfire conditions is subject to prevailing weather/wind patterns.

2. Cultural Resources

Due to the nature of prescribed fire and the controlled conditions under which they are set, cultural resources would not be exposed to the excessive heat common with wildfires. Thus, cultural resources would generally not be adversely affected by prescribed burns. The reduction of fuel loads would prevent the occurrence of wildfires of high temperature, which can alter cultural site materials such as obsidian artifacts. In discussions with Native American Tribes and individuals, concerns have been expressed about exposure of sites, disturbances to rock cairns, rock art and other features on the landscape. To prevent spalling of rock art, destruction of wooden structures, or making vegetated sites visible to artifact collectors, specific sites would be protected and not allowed to burn. Concerns about artifact collecting in areas inadvertently burned would be mitigated by increased patrols after the burn.

3. Cultural Plants:

Fire has a devastating effect on juniper, especially young trees; this will be discussed in consultation with the Tribes. Other cultural plants would benefit from light burning; especially the Indian tobacco which usually requires fire to maintain its health. While the actual burning would not be harmful in the long term to plants, management activities associated with fire could be: mechanical or retardant treatment has a long term detrimental effect; back fires have been shown in the southwest part of the WSA to open the area to cheat grass and other invasive plants species; and livestock grazing allowed too soon after a burn has negative effects on cultural plants.

4. Vegetation and Soils

Burning in a mosaic pattern would increase vegetative diversity, increasing both annual and perennial forb content while reducing the quantity of juniper and woody debris. Reduction of woody fuels would result in an increase in the relative abundance of forbs and grasses in these sites (Kauffman and Sapsis 1989). Evans (1988) observed that the release of understory forbs and grasses is not always accomplished with management treatment of over story shrubs. Vegetative response is dependent on the existing diversity within the treatment area and the amount and type of precipitation that follows the burn. Due to the current light component of cheat grass, further spread would be minimal. Kauffman and Sapsis (1989)

note that the native flora has evolved in a fire environment. Although variability exists in fire return intervals, fuel loading, and potential fire behavior, most species are dependent on fire to maintain health and vigor. Fire effects on the microbiotic crusts would be detrimental. Since most of the crusts are found under “old growth” juniper and large ponderosa pines, those trees could be used as visual clues to protect the crusts from prescribed fire.

5. Fuels and Firefighter Safety

Prescribed burning within suitable weather conditions would result in a mosaic burn pattern with 30-70% percent reduction of sagebrush and 30-70% reduction of junipers. Fuel loading would be reduced by 3-5 tons/acre, restoring the fuels to a more naturally occurring level, and greatly reducing the probability of a catastrophic wildfire in the future.

A successful treatment under controlled conditions will eliminate personnel from entering the troublesome terrain and working with problematic fire behavior. We would have a greater chance in allowing a wild fire play a natural role in the future that would limit the spread and intensity by eliminating the fuels that would sustain it over a large area. This will yield better firefighter and public safety.

6. Wildlife

A fall or early winter prescribed fire would have no impacts to bald eagles or peregrine falcons. Some nesting structures could be destroyed for ferruginous hawks, but project activities would occur outside the nesting season. These impacts would occur to potential individual nest sites, but would not be expected to reduce future nesting success or contribute toward the need to list this species.

No impacts would occur to Townsend’s big-eared bats. Depending on the season and timing of activities, this species would either be hibernating or resting in roost sites in underground caves.

Impacts to wintering deer would be moderate within the project area. Much of the browse available would be removed over the short term, however, sufficient foraging habitats exists within the surrounding area to maintain the existing populations. Impacts to elk would be minimal over the long term due to increases in the forage base after the fire. Decreases in cover could negatively impact elk within open areas, but major negative impacts would not occur over a large area.

This alternative would great benefit the bighorn sheep if removal of juniper and mahogany brush fields along the ridges and buttes within the interior of the project area are extensive. Currently bighorn populations are mostly restricted to the northeast corner of the Squaw Ridge lava flow. This area was burned by a wildfire several decades ago and provides the most suitable habitat available for bighorns within the lava flow. By reducing the amount of juniper and brush within the project area, native grasses would increase. This would increase bighorn forage and reduce cover for predators.

No negative impacts would occur to sage-grouse from the proposed project. Over the long

term, positive impacts could occur as sagebrush reinvades the prescribed burn areas and juniper and mahogany brush fields are reduced.

No significant negative impacts to other wildlife species would occur. The prescribed burn would occur in the fall or late winter, which would avoid affecting nesting birds.

7. Visual Resources

The objectives of VRM Class I would be met in the project area. The burn would produce a more varied vegetated mosaic in the visual landscape, with fingers of burned areas intermixed with unburned pockets of juniper, sagebrush, and mountain mahogany. This would duplicate a more natural appearance within a fire associated ecosystem. In the short term, the burned areas would be more visible to the nearby observer, although still difficult to discern, due to the existing dark colors represented by the lava flow (black to brown) and the surrounding vegetation (dark green) which would somewhat camouflage the black/brown hues generated by the prescribed burn. In the long term, as the burned junipers died off, lost their bark and turned gray, their skeletons would be visible against the darker background. Again, these patterns would be visible to the observer, but would appear as “natural” fire scars, thus meeting Class I objectives.

8. Wilderness

Opportunities for solitude would be restricted in the short term during each burning period. However, naturalness would be preserved and enhanced over the long term by restoring a more natural fire regime to the WSA, resulting in improving ecological diversity and habitat richness. In addition, the reduction of fuels would lessen the likelihood of large, catastrophic wildfires, which in turn would reduce the likelihood of future resource damage common during emergency fire suppression activities (Alternative 2). Although the proposed action entails vegetation disturbance and decreased short-term opportunities for solitude, the end result would improve the overall wilderness quality of the WSA and would be substantially unnoticeable.

The proposed action will conform to the BLM’s nonimpairment criteria established under the IMP. The proposed action is a permitted exception to the nonimpairment criteria under Chapter II.B.2. (4) as, “uses...that clearly protect or enhance the land’s wilderness values...” In addition, the proposed action will meet the IMP requirement of being “substantially unnoticeable” by adhering to Mitigation Measure #4 (filling out a visual contrast ratings form). According to the IMP, (Ch.II.B.17), “...substantially unnoticeable means that an action must be so insignificant as to be only a very minor feature or is not distinctively recognized by the average visitor as being human made or human-caused...”

9. Recreation

Although visitation to the project area is generally low, there would be short-term impacts to a small number of visitors as the burns are being conducted, particularly if the burns occur during fall hunting season. Smoke in the area and fire suppression vehicle traffic related to the burning effort would discourage people from entering the area or cause them to leave.

This would only be an impact during fall hunting season when most of the visitation occurs. The introduction of a more natural fire regime would not be anticipated to affect visitor use over the long term. Any potential impacts to recreation would be much more controlled than would occur under wildfire conditions (Alternative 2).

10. Range Administration

Most of the prescribed burn areas would be within the lava flow, which is currently inaccessible and unallotted to cattle. There would be no impacts to livestock grazing and no increase in grazing preference as a result of the project.

11. Sensitive Plant Species

It has not been demonstrated that fire has a negative effect on *Mimulus*; fall burning could enhance nutrients for these spring annuals.

12. Noxious Weeds

There is a threat of noxious weeds being introduced into the project area by administrative vehicles associated with the burns or recreationists, permittees and others accessing the area following individual burns. Vehicles used during the project would be cleaned prior to arriving at the job site. Reasonable attempts to avoid areas of heavy cheatgrass for staging operations and turning around vehicles would be specified in the burn plan.

B. Alternative No. 2: No Action

1. Air Quality

Uncontrolled wildfires would have a greater potential to impact air quality and visibility compared to conducting prescribed fires (Alternative 1) under controlled conditions. Further, these impacts would be more unpredictable.

2. Cultural Resources

In discussions with Native American tribes and individuals, it is preferable to have low intensity, smaller fire which tend to improve the condition of plants and animal habitats. Continuing current management would leave the area much more prone to future, uncontrolled, hot-burning wildfires, which could alter cultural site materials and expose large areas of sites to artifact collectors, which cause less disturbance/risks to cultural sites than wildfires.

3. Cultural Plants

Over time, a decline in diversity and number of plant species could occur. The most important plant that would decrease without disturbance is Indian tobacco. *Nicotiana attenuata*, which tends to disappear three to four years after a burn if no more disturbance

takes place. The other cultural plants would remain the same.

4. Vegetation and Soils

This alternative would allow existing juniper stands to become more decadent, thus increasing hazardous fuel loading. Current brush densities and ground coverage would maintain their current levels or increase slightly. A decline in forb diversity and forb and grass production would also be expected. This trend would continue until such time as a wildfire burned through the area and removed vegetation.

Soils would not be affected immediately. The potential for a landscape altering fire would continue to exist and along with its subsequent effects: soil sterilization due to severe temperature exposure, impeded vegetation regeneration, and subsequent increased soil erosion.

5. Fuels and Firefighter Safety

Fuel loading would increase with a continued change from fine 1hr –10hr fuels to woodier 100hr –1000hr fuels as juniper and brush component crowd out the grass and forb component, until such point as a catastrophic, stand-replacing wildfire occurs. Wildfire suppression and control problems would increase.

Wildfires would continue in this area. Fire would only be suppressed when making significant runs. Wildfires that have burned in this area in the past have been difficult and costly to suppress. 1) Personnel working inside the lava have no easily traversable escape route to a safety zone. 2) The terrain itself is a hazard to firefighters due to harm from the uneven and broken rock. This causes unneeded ankle and knee injuries. 3) Under our limited suppression plan we take action when the fire is usually making significant runs. Fire intensity is the greatest at these times and problematic fire behavior is also present. This is a risk to our safety as well for we are much safer suppressing a fire when it is small and inactive.

6. Wildlife

Over time, there has been an increase in western juniper and mountain mahogany within the project area. This has led to a gradual decline in habitat diversity including loss of understory forbs and grasses. As juniper continues to increase, quantity of winter browse for mule deer would continue to decline as bitterbrush and sagebrush decline. Quality would also decline as older plants go decadent. Habitats for elk would also gradually decline as juniper increases and grasses and forbs decrease.

The same pattern has occurred within bighorn sheep habitat. As juniper increases, forage would continue to decrease, as would preferred open spaces. Cover to hide predators would increase and bighorn populations would decline.

No impacts would occur to Townsend's big-eared bats from this alternative. Minor negative impacts to sage-grouse would occur over time as the remaining sagebrush areas are replaced

by dense juniper. No impacts would occur to bald eagles, ferruginous hawks, or peregrine falcons.

Some negative impacts would occur to species of shrub and ground nesting birds. This would occur as shrubs and ground cover decrease and as western juniper increases.

Habitats for other wildlife species would be maintained in small clumps over time. No negative impacts would occur.

7. Visual Resources

There would be no significant impacts to visual resources. If a catastrophic wildfire occurred, the visual impacts would increase and be visible to the casual observer.

8. Wilderness

Opportunities for solitude would remain the same, until a wildfire occurred. The existing way would continue to be mowed and extensively traveled during periods of wildfire, potentially changing the character of the way (by widening, introducing noxious weeds, creating a more substantial travel route) thus impacting the naturalness of the area. Natural revegetation, and possibly reseeding with natives would be the primary rehabilitation action allowed following a fire.

9. Recreation

There would no impacts to recreation until a wildfire occurred. Suppression activity would curtail recreational use of the areas during the wildfire, especially if it occurred during fall hunting season. Use of the areas after a wildfire could be less desirable for several years, particularly for camping and hunting, due to a blackened landscape and loss of trees.

10. Range Administration

There would be no impacts to range administration or livestock grazing management.

11. Sensitive Plant Species

There would be no impacts to sensitive plant species.

12. Noxious Weeds

The same moderate threat of the noxious weed invasion and spread that currently exists from recreational use and on-going management activities would continue.

C. Secondary, Indirect, and Cumulative Impacts:

Reintroduction of fire as a management tool would have a positive effect to the area and the surrounding ecosystem/watersheds. The success of the proposed activity could lead to

similar projects being implemented in the future; the cumulative effect would be to continue to reintroduce fire into the ecosystem and improve ecological diversity and habitat richness of the area, along with reductions in fuel loading and catastrophic wildfire risks.

VII. CONSULTATION AND PUBLIC INPUT

A. Public/Interagency Involvement

The following organizations or agencies were consulted during the planning stages for this project:

- Deschutes National Forest, Bend/Fort Rock Ranger District

B. List of Recipients

A number of agencies, organizations, individuals and tribal governments will be sent a notice of the EA/FONSI availability along with a request for comments. This list is located in the project file.

C. PARTICIPATING INTERDISCIPLINARY STAFF

Theresa Romasko	Rangeland Management Specialist
Philip Blythe	Prescribed Fire and Fuels
Gretchen Burris	Recreation, Wilderness, VRM
Bill Cannon	Archaeologist
Bob Crumrine	Fire Control Officer
Todd Forbes	Wildlife Biologist
Bob Hopper	Supervisory Rangeland Management Specialist
Lucile Housley	Botanist
Heather Partipilo	Botanist
Amy Lott	Biological Technician/Botany
Ken Kestner	Supervisory Natural Resource Specialist
Trish Lindaman	Wild and Scenic Rivers
Erin McConnell	Weed Specialist
Joel Burris	Prescribed Fire and Fuels
Paul Whitman	Planning and Environmental Coordinator
Lucile Housley	Botanist

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APPENDIX A

Proposed Action Analysis*

Proponent's Name/Project Lead: _____

WSA Name and Number:

Project Name: _____

Location and legal description (attach map showing project location and WSA):

Description of Project:

- 1) Is the project covered under an EA/EIS? Provide name and number:

- 2) Date(s) of proposed action:

- 3) Describe methods/equipment types used for proposed action:

- 4) Size of disturbance (acreage, linear feet, miles, square feet, etc.):

Review:

Outdoor Recreation Planner/Wilderness Specialist

Date

This project **does/does not** meet the nonimpairment criteria, or is an exception to the nonimpairment criteria (cite exception #), as stated in H-8550-1, the BLM's Interim Management Policy for Lands under Wilderness Review (IMP).

Follow up action required:

Area Manager

Date

***Please return a signed copy of this analysis to the Outdoor Recreation Planner for inclusion in the appropriate Wilderness file.**

APPENDIX B

Major Woody Plant Species
Squaw Ridge Proposed Project Area
Lake County, Oregon

<i>Amelanchier alnifolia</i>	serviceberry*
<i>Artemesia tridentata</i> <i>var.wyomingensis</i>	Wyoming Big Sagebrush*
<i>Artemesia arbuscula</i>	low Sagebrush
<i>Pursia tridentata</i>	bitterbrush
<i>Cercocarpus ledifolius</i>	mountain mahogany*
<i>Chamaebatiaria millefolium</i>	desert sweet
<i>Chrysothamnus viscidiflorus</i>	green rabbitbrush
<i>Ericameria nauseosus</i> (<i>Chrysothamnus nauseosus</i>)	gray rabbitbrush
<i>Juniperus occidentalis</i>	western juniper*
<i>Populus tremuloides</i>	quaking aspen*
<i>Pinus ponderosa</i>	ponderosa pine*
<i>Ribes aureum</i>	golden currant*
<i>Ribes cereum</i>	rock currant*
<i>Rosa woodsii</i>	wildrose*
<i>Symphoricarpos oreophilus</i>	snowberry
<i>Tetradymia canescens</i>	smooth horsebrush

*indicates cultural use by Tribal peoples for food, fiber, ceremony or medicine

Map 1 - Squaw Ridge WSA Fuels Treatment



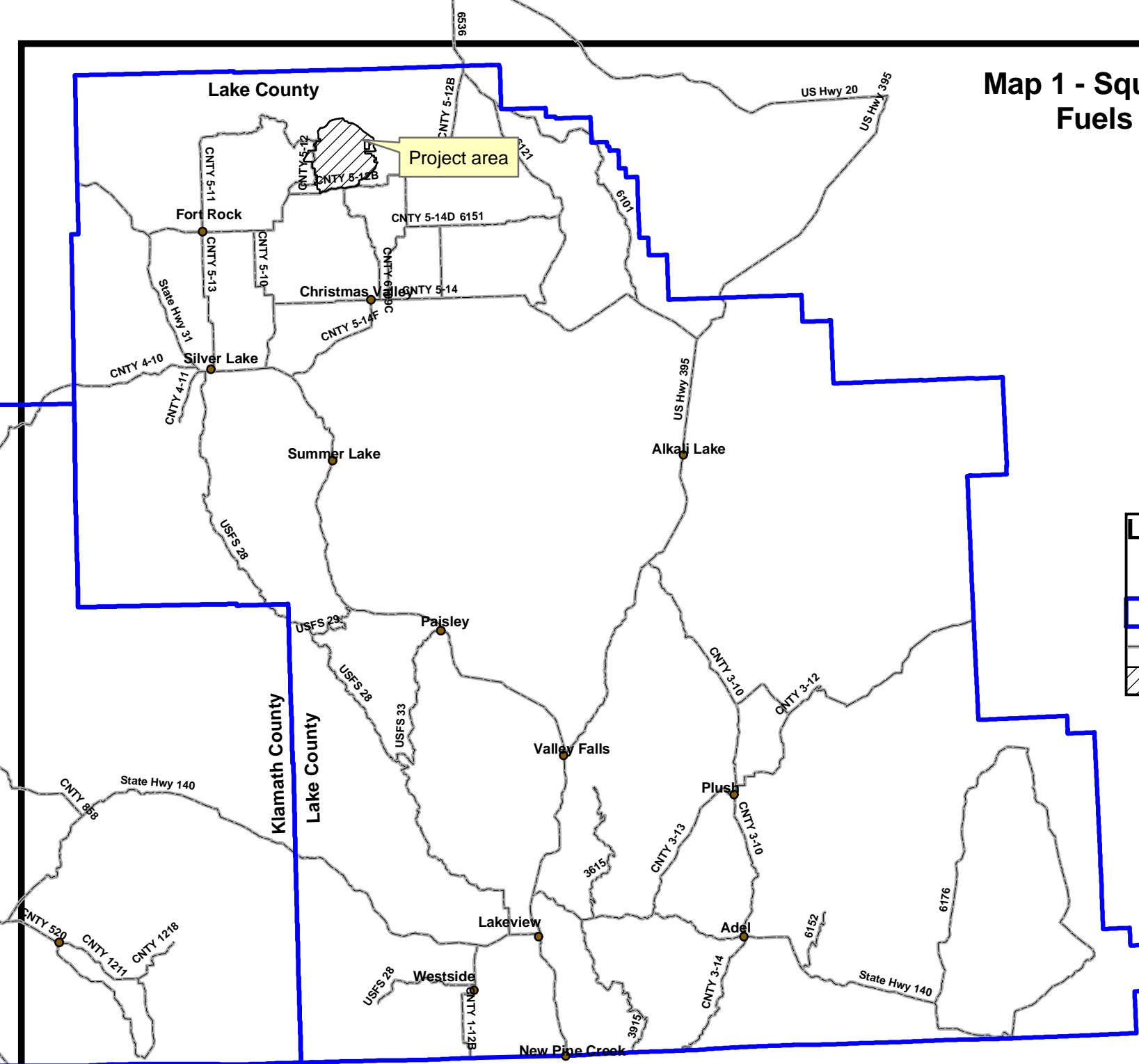
Legend

- Cities
- Lakeview Resource Area
- Major Roads
- ▨ Squaw Ridge WSA

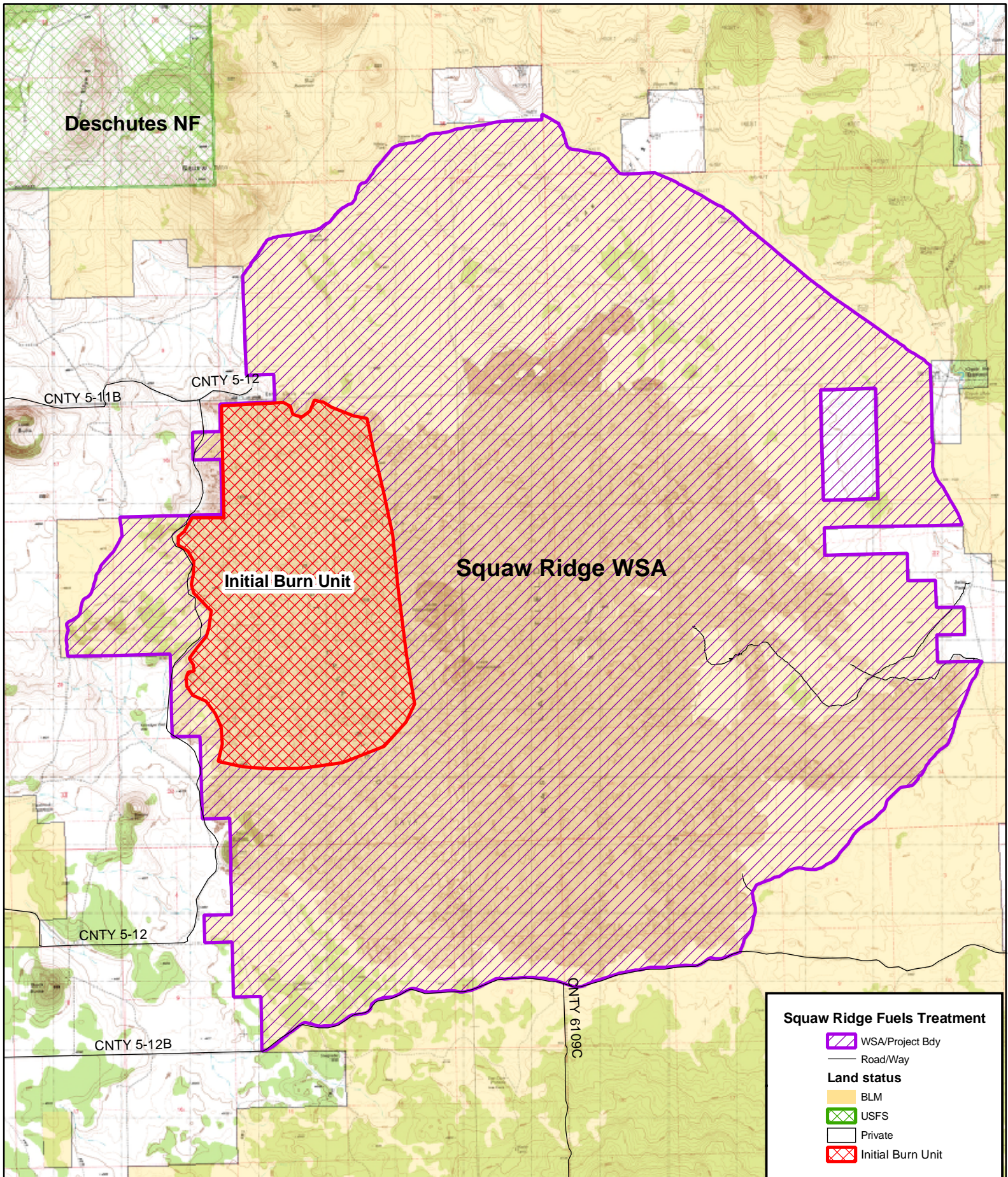
0 5 10 20 Miles



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Map 2 - Squaw Ridge WSA Fuels Treatment



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